

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated below. This listing of claims will replace all prior versions and listings of claims in the application.

1.-23. (Cancelled)

24. (Currently Amended) A method for selecting a subset of sites within a whole set of candidate sites for activating one or more radio stations in a telecommunications network, comprising the steps of:

building an initial solution comprising a subset of sites obtained by starting from a potential network configuration comprising as active the whole set of candidate sites, wherein the initial solution comprises compulsorily active cells corresponding to already active cells in the physical network; and

optimising the initial solution by activating “inactive” sites and/or deactivating “active” sites, in order to minimise a predetermined cost function for the solution, wherein the predetermined cost function includes a term pointing out the presence of pilot pollution in the system, and wherein at least one of the “active” sites is deactivated based on the term pointing out the presence of pilot pollution,

said steps of building and optimising the initial solution being adapted to define solutions having a geographic coverage wider than a predefined minimum coverage area and being adapted to manage an amount of traffic greater than a predefined minimum value of expected traffic.

25. (Previously Presented) The method according to claim 24, wherein said step of optimising comprises the steps of:

- i) generating a neighborhood of solutions of the current solution by activating “inactive” sites and/or by deactivating “active” sites;
- ii) computing a predetermined cost function of solutions belonging to the neighborhood and selecting a best solution of the neighborhood as current solution, depending on the respective cost values;
- iii) determining a set of solutions in a current solution neighborhood; and
- iv) iteratively applying steps i) - iii) until a predefined processing time is elapsed or until a solution whose cost is lower than a pre-determined value is obtained within said set of solutions and designating as final solution one among the obtained solutions within said set of solutions.

26. (Previously Presented) The method according to claim 25, comprising the steps of:

verifying, upon each iteration, that in the set of solutions in the current solution neighborhood at least one solution has

a geographic coverage area greater than the predefined minimum coverage area and is adapted to manage an amount of traffic greater than the predefined minimum value of expected traffic; or

a coverage area with relaxed constraints within a predefined threshold and is adapted to manage an amount of traffic greater than the predefined minimum expected traffic value or is adapted to manage an amount of traffic with

relaxed constraints within a predefined threshold and has a geographic coverage area greater than the predefined minimum coverage area; and

in case such check is not satisfied for a predefined number of iterations, building a solution satisfying these conditions through a random activation of one or more cells/sites starting from the current solution and consequently returning to step i) of generating the neighborhood of solutions applied to a thereby built solution.

27. (Previously Presented) The method according to claim 25, wherein the predefined minimum coverage area and the predefined minimum expected traffic are defined depending on the coverage area and traffic guaranteed by the potential network configuration.

28. (Previously Presented) The method according to claim 27, wherein solutions with relaxed constraints are allowed for which the coverage area and the amount of managed traffic related to the selected subset of sites are included within a relaxation threshold of the predefined requirements of minimum coverage area and minimum expected traffic.

29. (Previously Presented) The method according to claim 28, wherein the step of determining the set of neighborhood solutions comprises at least one of the following steps:

storing the best solution in terms of cost that shows a geographic coverage area that is greater than said minimum coverage area and is adapted to manage an amount of traffic that is greater than said minimum expected traffic value; and

storing the best solution in terms of cost for which the coverage area and the amount of managed traffic are included within said relaxation threshold of predefined requirements of minimum coverage area and minimum expected traffic value; and
storing the best solution in terms of cost that belongs to the solutions neighborhood.

30. (Previously Presented) The method according to claim 24, wherein the initial solution comprises the cells belonging to a predefined list of compulsorily active cells and the cells deemed as "not able to be turned off" due to a higher cell load than a predefined threshold load in the potential network configuration.

31. (Previously Presented) The method according to claim 30, wherein, in case said initial solution does not have a coverage area that is greater than said minimum area and an amount of traffic that is greater than said minimum traffic value, said solution is enriched by additionally including the cells deemed in the "able to be turned off" status due to a lower cell load than a predefined threshold load in the potential network configuration, but not having in such configuration any adjacent cell in soft hand-over.

32. (Previously Presented) The method according to claim 31, wherein, in case said enriched initial solution does not have a coverage area that is greater than said minimum area and an amount of traffic that is greater than said minimum traffic value, and the average load of cells in the potential network configuration is greater than a predefined threshold load, said solution is further enriched by additionally including cells having a low load and candidate to "capture" the associated load to cells deemed

in the “able to be turned off” status and having one or more adjacent cells in soft hand-over, in the potential network configuration.

33. (Previously Presented) The method according to claim 31, wherein, in case said enriched initial solution does not have a coverage area that is greater than said minimum area and an amount of traffic that is greater than said minimum traffic value, and the average load of cells in the potential network configuration is less than a predefined threshold load, said solution is further enriched by additionally including the most adjacent cells in soft hand-over candidate to “capture” the load associated with cells deemed in the “able to be turned off” status and having one or more adjacent cells in soft hand-over, in the potential network configuration.

34. (Previously Presented) The method according to claim 32, wherein, in case said further enriched initial solution does not have a coverage area that is greater than said minimum area and an amount of traffic that is greater than said minimum traffic value, the initial solution is built as solution that minimises the number of active cells among the obtained solutions, starting from the potential network configuration, by deactivating the cells:

having the lower sum of percentages of coverage area and carried traffic with respect to the total coverage area and carried traffic guaranteed by the potential network configuration, if, following such deactivation, the remaining coverage area and carried traffic are greater than their respective predefined minimum values; or

having the lowest coverage area, if, following such deactivation, the remaining coverage area is greater than the predefined minimum area, among a list of cells with

which the minimum carried traffic is associated, if, following such deactivation, the remaining carried traffic is greater than the predefined minimum traffic value; or

with which the lowest carried traffic is associated, if, following such deactivation, the remaining carried traffic is greater than the predefined minimum traffic value, among a list of cells having the lowest coverage area, if, following such deactivation, the remaining coverage area is greater than the predefined minimum area.

35. (Previously Presented) The method according to claim 33, wherein, in case said further enriched initial solution does not have a coverage area that is greater than said minimum area and an amount of traffic that is greater than said minimum traffic value, the initial solution is built as solution that minimises the number of active cells among the obtained solutions, starting from the potential network configuration, by deactivating the cells:

having the lower sum of percentages of coverage area and carried traffic with respect to the total coverage area and carried traffic guaranteed by the potential network configuration, if, following such deactivation, the remaining coverage area and carried traffic are greater than their respective predefined minimum values; or

having the lowest coverage area, if, following such deactivation, the remaining coverage area is greater than the predefined minimum area, among a list of cells with which the minimum carried traffic is associated, if, following such deactivation, the remaining carried traffic is greater than the predefined minimum traffic value; or

with which the lowest carried traffic is associated, if, following such deactivation, the remaining carried traffic is greater than the predefined minimum traffic value, among

a list of cells having the lowest coverage area, if, following such deactivation, the remaining coverage area is greater than the predefined minimum area.

36. (Previously Presented) The method according to claim 25, wherein the step of generating a neighborhood of solutions comprises the steps of:

verifying the type of a predefined number of previous activation/deactivation moves; and

building a solutions neighborhood through moves of the same type of said number of previous moves.

37. (Previously Presented) The method according to claim 36, wherein an activation move comprises the activation of a useful cell in order to remove coverage and/or traffic holes, or having a high adjacency parameter value in soft hand-over toward cells having high cell load values.

38. (Previously Presented) The method according to claim 36, wherein a deactivation move comprises the deactivation of a cell having a lower cell load and having a high adjacency parameter value in soft hand-over toward at least one active cell having a cell load value that is lower than a pre-established maximum value.

39. (Previously Presented) The method according to claim 36, wherein a deactivation move comprises deactivation of a cell having in soft hand-over adjacency at least one cell able to support the load and for which the ratio between carried traffic by current active cells and placed in pilot pollution by the cell under deactivation, and globally carried traffic by the cell under deactivation, is maximum.

40. (Previously Presented) The method according to claim 29, wherein a "restore" procedure is performed for a solution in case it is impossible to build a non-

empty neighborhood of the current solution, in which the best stored solution during said iterations is “restored”.

41. (Previously Presented) The method according to claim 29, wherein a “restore” procedure is performed for a solution in case it is impossible to build a non-empty neighborhood of the current solution, in which a random solution is built.

42. (Previously Presented) The method according to claim 24, wherein the cost function of a solution is expressed as weighed sum of a plurality of cost items, comprising items representing:

the ratio between geographic area not served by a subset of active sites and a served area in a potential network configuration;

the ratio between traffic not carried by the subset of active sites and traffic carried in the potential network configuration;

the mean square deviation of load cells of activated cells, from an ideal cell load;
and

the mean square deviation of soft hand-over loads of activated cells, from an ideal soft hand-over load.

43. (Previously Presented) The method according to claim 42, wherein the cost function of a solution comprises a further cost item pointing out the ratio between global traffic in pilot pollution associated with the set of active cells in the examined solution and maximum pilot pollution that can be found in the potential network configuration.

44. (Previously Presented) A processing system for selecting a subset of sites within a set of candidate sites for activating one or more radio stations of a

telecommunications network, comprising one or more processing modules programmed for performing a site selecting method according to claim 24, and an associated module for evaluating the performance of the set of selected sites.

45. (Previously Presented) A computer readable medium encoded with a computer program product or group of computer program products that can be loaded into a memory of at least one processing system and executed by the processing system, comprising one or more modules capable of performing a method according to claim 24 for selecting a subset of sites within a set of candidate sites for activating one or more radio stations in a telecommunications network.

46. (Previously Presented) A method for planning a telecommunications network comprising a plurality of radio stations sites, comprising a selection of sites from a set of candidate sites through a method according to claim 24.

47. (Previously Presented) A telecommunications network, comprising a plurality of radio stations sites selected from a set of candidate sites through a selection method according to claim 24.